HOW TO DEVELOP AN UNRECOGNIZED SCIENTIFIC HERITAGE: THE CASE OF THE UNIVERSITY OF LIÈGE ZOOLOGICAL COLLECTIONS, BELGIUM

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Abstract

This paper presents the nature and value of the zoological collections conserved in the University of Liège zoological museum.[1] The "hidden" collections comprise the scientific heritage of former and even famous researchers (e.g., Edouard Van Beneden and his students) ignored by most University of Liège researchers and administrators, and thus little utilized. Since World War II and the development of official public opening, researchers have not considered the museum to be the central place to preserve their study material and specimens. Collection management in the past twelve years has been oriented toward scientific development of the collections. This has led to the creation of computerized databases of collection holdings, a museum web site, collection care workshops for volunteers, thematic exhibitions, publications and participation in conferences with increasing attendance. Despite the accomplishments and successes of these volunteer activities, the University appears to care little about scientific development, instead favoring the collection's didactic value and public engagement. The museum and the aquarium actually are merged and collection management of both is the responsibility of the aquarium curator. The total activities, accomplishments and efforts needed to preserve the collections are not considered important enough to justify a separate museum curator. Therefore, the future of the "hidden" scientific collections remains uncertain.

Origin of this Scientific Heritage

The preservation of collections began at the University of Liège with the creation of the University in 1817, through an official decree of *Guillaume the 1st, King of the Netherlands*. The decree, which took place on the 26th of September, 1816, required all newly created universities to collect specimens and maintain collections to support and illustrate the courses and lectures given to the students (De Clercq *in litt.* 2003). Liège is one of Belgium's oldest universities, along with Leuven and Ghent (Verschelde *in litt.* 2003). By another official decree, on the 10th of February, 1853, the first Belgian King *Leopold I* imposed the requirement to record collection items in catalogs. Specimens in the collection were first inventoried in 1836 and a catalog was produced in 1837. This first official record and the others that followed have been preserved to the present day. They constitute the oldest tracking of collections contents for that time period.

Successive professors in charge of the zoological collections each contributed to their enrichment. The first professor of natural sciences at Liège University, from 1818 until 1834, was Henri-Maurice Gaede, from Kiel. His successor, Jean-Theodore Lacordaire, significantly developed the collections and created a worldwide illustration of animal biodiversity.

Lacordaire was from France; he traveled in South America before arriving in Liège. As an entomologist and systematician (Lacordaire 1834, 1838), he knew the scientific value of reference collections and worked for the growth and worldwide diversification of the collections. A tireless man, he twice accepted the post of Rector of the University (Le Roy 1869; Morren 1873). He bought many mammals, birds and fish specimens from Australia, Southeast Asia and South America from Francis Laporte Comte de Castelnau. His purchases also contained Castelnau's diary on fish from South America, fully illustrated with original color paintings made in the field.

When Lacordaire died in 1871, the young Belgian Edouard Van Beneden was called on to follow him, and he became the third professor of Zoology and Comparative Anatomy. Van Beneden twice refused to become the Rector in order to devote himself fully to research and teaching. He organized an expedition to Brazil (Van Beneden 1873) and several projects to collect marine material at the Belgian coast (Van Beneden 1883a, 1883b, 1884, 1887). He succeeded in having a Zoological Institute constructed, in which collections and some research units in zoology still remain more than 100 years later. He developed a Belgian Fauna section among the collections. Under his direction, the collections were related closely to research and also served as study material for his pupils (Van Beneden & Julin 1884, 1886; Van Beneden 1891; Cerfontaine 1891, 1909; Godeaux 1986). His innovative work and his discoveries made him famous worldwide. When he died in 1910, many unpublished or unfinished works remained to be utilized by others (Van Beneden 1923; Damas 1936a; Brien 1968, Hamoir 1986, 1999).

The fourth Professor in charge of the zoological collections was Désiré Damas, a student of Van Beneden with an interest in marine biology (Damas 1904, 1905, 1922, 1936b). He took over teaching the courses and, during the two World Wars, he saved the collections from havoc and destruction. The zoological institute itself was only partially destroyed by bombing, and most of the collections were preserved. Aside from preserving

the collections, he contributed many marine samples that were collected during his Atlantic Expedition in 1922.

After World War II: Evolution of Collection Use and Management

The first change in the role of the zoological collections and the museum happened after World War II with the nomination of Marcel Dubuisson as the fifth professor of Zoology. He also quickly became the Rector of the University. He wanted to promote the collections as a resource for the wider public as well as for the students. He intended to renovate and increase the museum area and create an aquarium.

During the 1950s, two museum curators (namely Fritz Carpentier and Fernande Kraentzel) and four technicians were involved in moving and preparing the specimens for the new museum exhibition rooms. Many research programs, conducted by the University in the Belgian colonies, led to the integration of numerous African animals into the collection. The official public opening of the newly created "Marcel Dubuisson" Aquarium and the renovated Museum was celebrated in November 1962. Both are located in the old Zoological Institute, now called the Van Beneden Institute.

During that period, the courses in the zoology degree became more diversified. Teaching responsibilities were split among several professors. With the ongoing division of the teaching, the Museum progressively lost its role as a central depository and storage location for the study material. Each small research unit held material until the principal researcher left the unit. Then all was stored in boxes and forgotten in the cellar.

There was a break from tradition in 1972, when the sixth professor became Academic Director of the zoological collections of the museum and the new aquarium, following Dubuisson. He was professor of the new course, "Ethology and Animal Psychology," rather than professor of Zoology, Systematics, Morphology or Comparative Anatomy. Fernande Kraentzel, the last former curator, retired in January 1972 and was replaced by Noël Magis, who began to develop a reference collection in entomology and introduce temporary exhibitions in the Museum.

Since the 1980s, major reductions in staff and funding have occurred in the University. Retirees have not been replaced. The museum lost its technicians, including its taxidermist. When the last curator retired in September 1991, the University only supported one temporary half-time assistant position for the zoological museum. Moreover, care and management of the collections was separated from public management, through the creation of a special association devoted to public opening, promotion and financial resources management.

My mission for 12 years, acting as half-time curator in the zoological museum for the professor of Ethology, has been to develop the scientific collections.

Developing the Scientific Part of this Heritage

In contrast to the collections exhibited for didactic purposes in the public rooms, all specimens conserved in the museum depositories are "hidden"—unknown or forgotten by the local researchers. The former curators, however, had organized them systematically in the different depository rooms and cabinets, and they still can be found easily (Fig. 1). I also tried to collect the old study material, forgotten in the different research units or cellars. I often saved materials just before they were going to be thrown away.

From a strictly scientific perspective, the first step in development is to find out what we have. The second step is to diffuse the knowledge among the scientific community, by all possible means. The third step is to welcome scientists to study the material. From the curator's point of view, in a small regional museum, welcoming people interested in the collections is as important as caring for specimens. The museum serves as an identification and information office about animals, welcomes volunteers and collaborators, presents temporary exhibitions and develops public as well as scientific relationships.

1) Establish the State of the Art in Museum Holdings

To achieve the goal of managing information in a modern way, digital databases were created with all the available information copied from the old catalogs using FileMaker Pro on a Macintosh computer (Fig. 2).

Four years were needed to encode the minimal information available in the hand-written records. The process began in 1992. The last museum technician, initially working as an illustrator, provided assistance as a data encoder. New data fields were added, such as systematic taxa, geographic and management fields about location, accessibility, condition, and so on. Data encoding is an ongoing process. For example, we created new single entries for cards referencing multiple specimens. This procedure also needs to be done for the entomological collections where one numbered card refers to several thousands of specimens. A large staff is needed for this to be completed, as the file contains 21,778 cards (Fig. 3).

This reference list of what we have in the collection allows us to sort the data by any data field and to look for particular characteristics. When we make inventories in storage and exhibition rooms, we compare what we find with the database. We find some specimens that have not been previously recorded. These are mainly among the 1872 Brazilian and 1922 Atlantic samples.

Fig. 1. Example of hidden collection: partial view of the birds, reptiles and amphibians depository. Hundreds of bird specimens have been held since World War II in the wood boxes, ordered by systematics. Actual standards of conservation would reject this kind of stocking. The inventory of the cabinets and boxes began in 2001, but has discontinued for lack of human resource. Photograph by E. Walravens.

Fig. 2. The computerization of collection holdings in a database was based firstly on items in the old handwritten registers. This laborious work began in 1992 and continued slowly but surely, mainly thanks to the conversion of the Museum drawer to a data encoder. The next stage is to inventory the holdings really present in the cabinets. Only the cabinets in the exhibition rooms have been inventoried so far. Photograph by author.

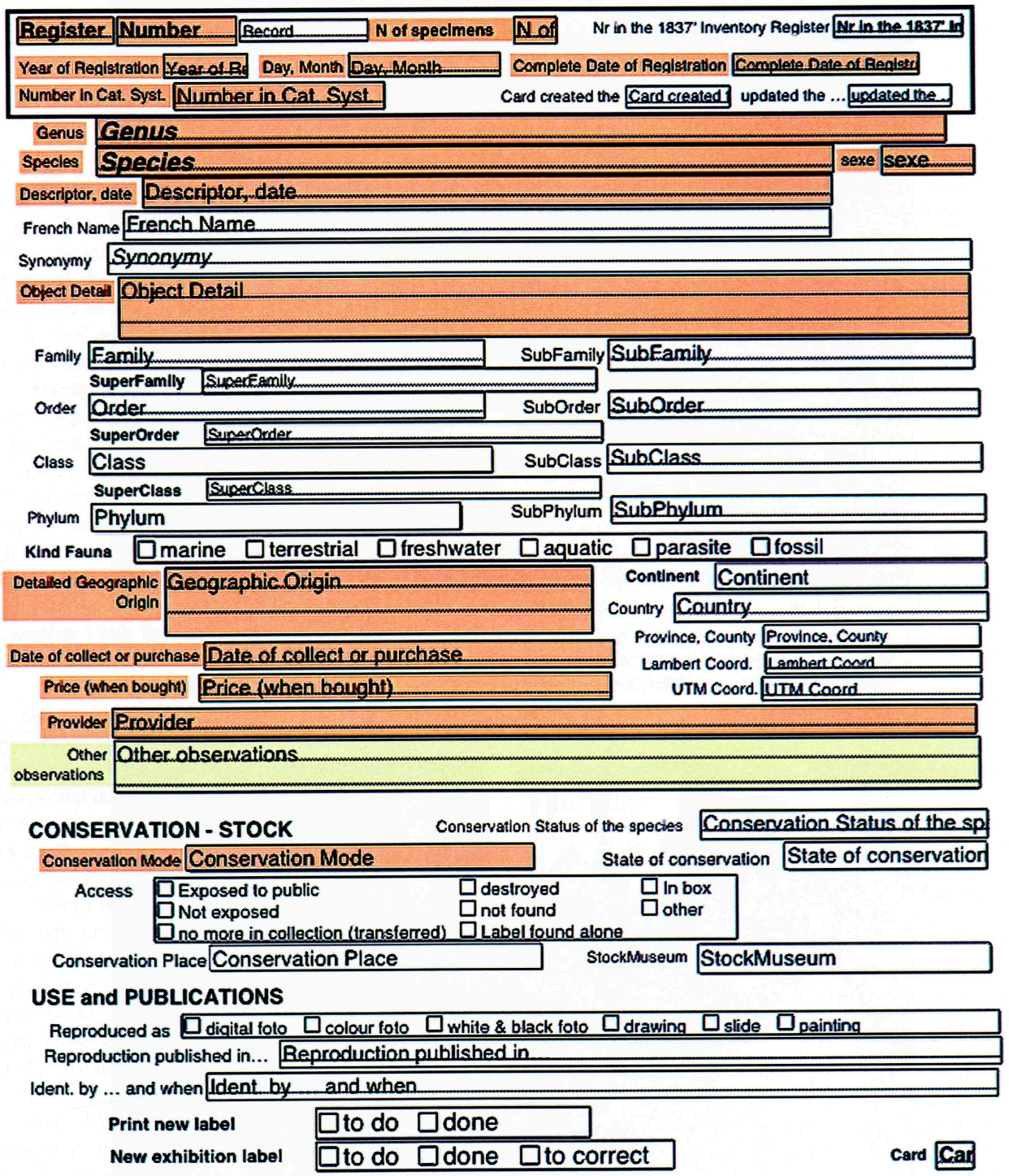

Fig. 3. Fields of the encoding card in the database. The information in the highlighted fields comes directly from the written record. All the other fields are filled in with information from other taxonomic sources and from inventories in the various storage rooms.

This database is our best tool and makes the museum a leader compared to the other museums in Belgium, where computerization of collections is only in an early phase. Recently, the government of our French-speaking Community published a "Museum" decree in December 2002 requiring computerization of the collections.

2) Diffuse Information Worldwide

We use the Internet, international meetings and journals to disseminate information. The museum web site was created at the end of 1996 by a student group as a practical exercise in multimedia training. The site address has been accessible on the net since January 1997. It presents an introduction to the public exhibition rooms and collections and historical information.[2] It is enriched periodically with new pages of information. One of the goals of the site is to provide information about collection content, but database access is not yet functional.

Another means of information dissemination is to attend national and international conferences[3] and present posters or oral communications about our collections. This only has been effective since 2000 (due to improvement of the database), but few conferences are organized on the topic of collections. Some papers were published on specimens or taxonomic revision through these conferences (Loneux 2002a, 2002b, 2002c, 2003; Loneux & Thiery 1998; Loneux & Walravens 1998, 2002).

3) Welcome Specialists for Studies on the Material

All people interested in collections are welcome. We are not able to pay for the travel of researchers, thus we are visited by few foreign specialists. We succeeded once, however, in helping a Russian specialist obtain a grant from our Belgian Commissariat for International Relations. Tina Molodtsova stayed two months during autumn 1999 to review the Cerianthida-type material studied by Van Beneden.

We also loan material for study, if feasible. Specimens are sent to researchers, or they come to borrow them. Researchers publishing results are invited to send a copy of their paper to the museum.[4]

Regarding the UMAC 2003 Theme: "Engaging the Community"

We welcome students from high schools (pre-university) for practical exercises using the Museum collections. Future multimedia graduates (5 students) and future librarians (7 students) contributed to the enrichment of the web site and the digital documentation of specimens. For example, the temporary exhibitions that we produced have been put on the web after the exhibition: one page presents the common or curious spiders from West Europe (in French only).[5] Another page presents the common arthropods found in houses (in French only).[6] We have many ideas for further development.

I developed the practical part of my lectures in Entomology (15h + 15h) using the entomology collections. Five students in 2003 have worked either to prepare an exhibition box concerning a group of insects or a theme, or to enter database information on a single insect specimen from an entomological donation.

Every Friday evening since January 2001, I have organized weekly free practical workshops on osteology and entomology for any student or adult volunteers interested in collection work. Topics include washing specimens, mounting skeletons, mounting insects on pins, encoding data in the database, filling up jars with alcohol, etc. The regular participants were veterinarian students and children 8-15 years old. The children came more often during holidays. Their work allowed us to prepare some specimens requested for exhibitions outside the Museum, or simply to preserve and take care of specimens already exhibited or stored in depositories.

Since 2000, we have taken on "scientific collaborators" for the Museum. This official status, without any salary, is recognized yearly by the University for outside people introduced and recommended by a head of a unit. These collaborators agree to help with the preparation of public exhibitions, the restoration of specimens or the sharing of expertise in specimen identification, mainly in Entomology.

Although we took on students, we did not obtain any commitment from our own colleagues in the Institute. They do not seem to care about the scientific value and use of the specimens. The requests for study material come more from foreign than Belgian researchers. Most of the Belgian requests come from external people rather than from Liège University. At present, requests are received more by e-mail than by postal mail or direct visits.

Zoological Collections in Liège: Present and Future

Despite present accomplishments, the second millennium marks another change in collection use and management. The Museum's role as a showpiece is retained, but only through the permanent exhibition rooms. In 2000, the last academic director retired and the departments and research units were reorganized. The administrative direction of the museum remained suspended. In 2002, the university merged the museum with the aquarium. As a result, the separate university funding for collection care and scientific development has been lost.

Since 2001, two sources of revenue have been renting specimens requested for outside exhibitions, and my entomological identifications and expert appraisals.

The income was large enough in 2003 to cover the costs of preservation alcohol and care against insect pests, and fund attendance costs for the UMAC conference in Norman, Oklahoma, USA, and the European Bird Collections Conference in Leiden, NL. Participation in previous UMAC conferences, however, was not possible.

In the future, one curator will be appointed in January 2004, for both the Aquarium and the Zoological Museum. The job description is completely different. Combining the curatorships is a substantial savings for the University, which has stated that dead collections would not need someone to care for them and could wait. The live fish and public engagement are considered to be more important than the scientific heritage, so the one curator will be the actual Aquarium curator. The last museum technician has been encouraged to go into early retirement (but without success so far), and my job has been eliminated.

It seems clear that I have not succeeded in involving the community, even if I have good support of the ones I have engaged. The actions and accomplishments presented here have not elicited enough community attention as far as the decision-makers were concerned. I did "engage communities," but not the strategic ones and definitely not enough, even if I spent more than a strict half-time job pursuing those goals. Valorizing heritage ought to involve promoting yourself and your job to the decision-makers and scientific community within your own university. The real future of collection management and scientific valorization is still unknown.

As the University of Liège does not allow appropriate scientific collection maintenance and development, through its limiting of staff and resources devoted to zoological museum collection care and research, the part of the collections not used for public exhibition should be entrusted to conservation institutions that can focus on specimens and collections, such as the Royal Institute of Natural Sciences in Brussels, The Royal Africa Museum in Tervueren and the Entomological Conservatory of the University of Gembloux. In this way, the University would demonstrate its willingness to preserve the scientific value of these collections. Another possibility is that the 2004 vacancy in Animal Systematics will be given to a researcher with a particular interest in collections-based research, who is ready to develop the zoological museum resources, as well. On the 21st of January, 2004, the Rector announced the creation of a vast Science Museum project to be installed in the Zoological Institute and its surrounds, without elaborating further.

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Notes

[1] The author was an assistant acting as Curator at the University of Liège zoological museum from 1991-2003.

[2] The museum web site is accessible through http://www.ulg.ac.be/museezoo.

[3] Conferences such as: 1st World Congress on Conservation and Preservation of Natural History Collections, Madrid (Spain), May 1992; 2nd World Congress on Conservation and Preservation of Natural History Collections, Cambridge (UK), August 1996; 2nd European Crustacean Conference, Liège, Sept. 1996; 7th Entomological meeting of Gembloux, Gembloux (Belgium), October 2, 2000; Symposium "Status and trends of the Belgian Fauna with a particular emphasis on alien species," Royal Belgian Institute of Natural Sciences, Brussels (Belgium), December 14, 2001; 23rd IOC 2002 International Ornithological Congress, Beijing (China), August 2002; "The Colour of Ocean Data," International Symposium on oceanographic data and information management with special attention to biological data, Brussels, November 25-27, 2002; 8th Entomological meeting of Gembloux, Gembloux, December 18, 2002; UMAC 2003 3rd Conference on University Museum And Collections, Norman, OK (USA), September 21-26, 2003; 3rd Conference on Bird Collections, Leiden, October 2003.

[4] Examples include d'Udekem 1997; Lays 1997; Molodtsova 2001; Reiling 1998, 2000, 2002; Thiéry 1996; Tomasovic 2000; Wasson 1996.

[5] Accessible through http://www.ulg.ac.be/museezoo/ara.

[6] Accessible through http://www.ulg.ac.be/museezoo/arthro.

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